# Section II: Detailed Measure Specifications

Provide sufficient detail to describe how a measure would be calculated from the recommended data sources, uploading a separate document (+ Upload attachment) or a link to a URL. Examples of detailed measure specifications can be found in the CHIPRA Initial Core Set Technical Specifications Manual 2011 published by the Centers for Medicare & Medicaid Services. Although submission of formal programming code or algorithms that demonstrate how a measure would be calculated from a query of an appropriate electronic data source are not requested at this time, the availability of these resources may be a factor in determining whether a measure can be recommended for use.

## A.     Description

This measure describes the extent to which high risk pregnant women have outpatient visits with maternal fetal medicine specialists or designated subspecialists during their pregnancy. This measure includes 8 sub-measures. The first sub-measure is a summary measure that describes the extent to which high risk pregnant women have outpatient visits with maternal fetal medicine specialists or subspecialists. The next six sub-measures describe the extent to which specific high risk pregnant subgroups have outpatient visits with maternal fetal medicine specialists or designated subspecialists during their pregnancy. The last sub-measure describes the extent to which high risk pregnant women lack prenatal care. The 8 sub-measures are:

- Percent of high risk pregnant women who have 0, 1, or 2 or greater outpatient visits with a MFM or an indicated subspecialist during their pregnancy.
- Percent of pregnant women with HIV disease who have 0, 1, or 2 or greater visits with a MFM or an infectious disease specialist during their pregnancy.
- Percent of pregnant women with specified cardiac disease who have 0, 1, or 2 or greater visits with a MFM or a cardiologist during their pregnancy
- Percent of pregnant women with a mood disorder or mental health disorder complicating pregnancy who have 0, 1, or 2 or greater visits with a MFM or psychiatrist, psychologist, or licensed therapist.
- Percent of pregnant women with substance dependency who have 0, 1, or 2 or greater visits with a MFM or psychiatrist, psychologist, or licensed therapist during their pregnancy.
- Percent of pregnant women with specified poor obstetrical history who have 0, 1, or 2 or greater visits with a MFM during their pregnancy.
- Percent of pregnant women with epilepsy who have 0, 1 or 2, or 3 or greater visits with a MFM or neurologist during their pregnancy.
- Percent of high risk pregnant women who have no outpatient visits with any provider during their pregnancy.

This measure (including the 8 sub-measures) is intended to be reported at the level of health plan or geographical entity, such as county, state, region, etc.  It is not appropriate for measuring at the level of clinical provider. This measure is a descriptor of the availability of care for the population of women who may need high risk obstetrical services and is not a measure of the quality of care received by any individual in that population.

## B.     Eligible Population

Women age 10- 65 years who are pregnant and deliver an infant, whether living or dead. Delivery shall be identified using Table 1, with exclusions as noted regardless of how delivery was identified. The table is recreated largely from work done by CDC researchers.

### Table 1: Identify Qualifying Pregnancies Using the Following Codes

| Codes To Identify Qualifying Pregnancies | |
|---|---|
| Description | Code(s) |
| Revenue Code | 722 Delivery |
| Outcome of delivery ICD-9 | ICD-9-CM = V27 |
| Normal delivery | ICD-9-CM = 650 |
| Diagnosis-related group (DRG) delivery codes | 370 (complicated cesarean section), 811,191 (3.03) 371 (uncomplicated cesarean section), 372 (complicated vaginal delivery), 373 (uncomplicated vaginal delivery) 374 (uncomplicated vaginal delivery with sterilization and/or dilatation & curettage) 375 (vaginal delivery with operation room procedure except sterilization and/or dilatation & curettage) |
| Selected delivery related procedures | ICD-9-CM = 720, 721, 7221, 7229,7231, 7239, 724, 726 (forceps) 7251, 7252, 7253, 7254 (breech extraction) 7271, 7279 (vacuum extraction) 728, 729 (other specified and unspecified delivery) 7322 (internal and combined version and extraction) 7359 (other manually assisted deliveries) 736 (episiotomy)740, 741, 742, 744, 7499 (cesarean section)<br><br>ICD-9 Diagnosis code: 656.41 (fetal death, late gestation) |
| Exclusions | ICD-9 = CM 630 (hydatidiform mole) 631 (other abnormal product of conception) 633 (ectopic pregnancy) 632 (missed abortion) 634 (spontaneous apportion) 635 (legally induced abortion) 636 (illegal abortion) 637 (unspecified type of abortion) 638 (failed attempted abortion) 639 (genital tract and pelvic infection following abortion or ectopic and molar pregnancies) 69.01, 69.51, 74.91, 75.0 (abortion) |

**Identify Women in Need of High risk Services:**

**Table 2:  Maternal Diagnoses and Comorbidities**

| CCS Category | Look Back Period | Descriptor | Remove From Inclusion List* |
|---|---|---|---|
| 49 | 2y | DM without Cx | 7902 Abnormal Glucose<br>79021 Impaired fasting glucose<br>79022 Impaired glucose tolerance test (oral)<br>79029 Other abnormal glucose<br>7915 Glycosuria |
| 50 | 2y | DM with Cx | |
| 98 | 2y | Essential HTN | |
| 99 | 2y | HTN with CX and Secondary HTN | |
| 100 | 2y | Acute MI | |
| 101 | 2y | Coronary atherosclerosis and other heart disease | |
| 104 | 2y | Other and ill-defined heart disease | |
| 103 | 2y | Pulmonary heart disease | |
| 96 | 2y | Heart valve disorders | 4240 Mitral valve disorders<br>7852 Undiagnosed cardiac murmurs<br>7853 Other abnormal heart sounds |
| 97 | 2y | Peri, endo and myocarditis or cardiomyopathy | |
| 105 | 2y | Conduction disorders | |
| 106 | 2y | Cardiac Dysrhythmias | |
| 107 | 2y | Cardiac arrest and vfib | |
| 108 | 2y | CHF, non hypertensive | |
| 109 | 2y | Acute Cerebrovascular disease | |
| 110 | 2y | Occlusion or stenosis of pre cerebral arteries | |
| 111 | 2y | Other and ill defined cerebrovascular disease | |
| 112 | 2y | Transient cerebral ischemia | |
| 156 | 2y | Nephritis nephrosis, renal sclerosis | |
| 158 | 2y | Chronic kidney disease | |
| 157 | 2y | Acute and unspecified renal failure | |
| 161 | 2y | Other diseases of kidney and ureters | 5890 Unilateral small kidney<br>5891 Bilateral small kidneys<br>5899 Small kidney, unspecified |
| 128 | 10 m | Asthma | 49381 Exercise induced bronchospasm<br>49382 Cough variant asthma |
| 132 | 10 m | Lung disease due to external agents | |
| 133 | 2y | Other lower respiratory disease | 78600 Respiratory abnormality, unspecified<br>78601 Hyperventilation<br>78602 Orthopnea<br>78605 Shortness of breath<br>78606 Tachypnea<br>78607 Wheezing<br>78606 Tachypnea<br>78607 Wheezing<br>7862   Cough |

| ICD9 Code | Look Back Period | Descriptor | |
|---|---|---|---|
| | | | 7864  Abnormal sputum<br>78652 Painful respiration<br>7866  Swelling, mass, or lump in chest<br>7867  Abnormal chest sounds<br>7868  Hiccough<br>7931  Nonspecific (abnormal) findings on radiological and other examination of lung field<br>79311 Solitary pulmonary nodule<br>79319 Other nonspecific abnormal finding of lung field<br>7942  Nonspecific abnormal results of pulmonary function study<br>V126  Personal history of diseases of respiratory system<br>V1260 Personal history of unspecified disease of respiratory system<br>V1261  Personal history of pneumonia (recurrent)<br>V1269  Personal history of other diseases of respiratory system |
| 59, 61, 63, 64 | 2y | 59. Deficiency anemias<br>61. Sickle cell<br>63. WBC disease<br>64. Other hematologic conditions | 281xx 2820 2821 2822 2823  28246 2825 2883 2885x 286x 2888 2889 289 2891 2892 2893 2894 2895 28950 28951 28953 28959 2896 2897 28983 2899 |
| 657 | 10m | Mood disorders | |
| 660 | 2y | Alcohol related | |
| 661 | 2y | Substance related | |
| 116 | 2y | Aortic and peripheral arterial embolic thrombotic | |
| 118 | 2y | Phlebitis, embolic, etc | 4510  45182  4536 4537 |
| 5 | 2y | HIV | |
| 182 | 2y | Hemorrhage during pregnancy, abruption, previa | 642.00 Threatened abortion unspecified as to episode of care<br>642.01 Threatened abortion delivered<br>642.03 Threatened abortion antepartum<br>640.80 Other specified hemorrhage in early pregnancy unspecified as to episode of care<br>640.81 Other specified hemorrhage in early pregnancy delivered<br>640.83 Other specified hemorrhage in early pregnancy antepartum<br>640.90 Unspecified hemorrhage in early pregnancy unspecified as to episode of care<br>640.91 Unspecified hemorrhage in early pregnancy delivered<br>640.93 Unspecified hemorrhage in early pregnancy antepartum |
| 183 | 10m | Hypertension complicating pregnancy | 642.30 Transient hypertension of pregnancy unspecified as to episode of care<br>642.31 Transient hypertension of pregnancy with delivery<br>642.32 Transient hypertension of pregnancy with delivery with postpartum complication<br>642.33 Antepartum transient hypertension<br>642.34 Postpartum transient hypertension |
| 83 | 2y | Epilepsy | |
| ICD9 Code | Look Back Period | Descriptor | |
| 648.4x | 10m | Mental disorders complicating pregnancy | |
| 648.3x | 10m | Substance dependence during pregnancy | |
| 648.5x | 10m | Congenital cardiac | |

|        |       | disorder, other CV disease, mother |
|--------|-------|------------------------------------|
| 7620   | 10m   | Complete previa affecting the newborn |
| 694x   | 10m   | Epilepsy |
| 345xx  |       |          |
| V23.49 | 10m   | Poor ob history |
| V23.41 | 10m   | History of preterm labor |

**\*These are ICD9 codes that are included in the CCS software for the indicated Group that need to be removed from the inclusion list.  That is, they are not specific <u>exclusions</u>, but neither do they establish eligibility.**

## C.    DATA SOURCES

### Encounter Data with billing, provider, and diagnosis codes
a. Identify eligible population
   i. High risk pregnant women.
   ii. Identify those deliveries associated with high risk conditions as described in Table 1.
   iii. To identify provider/specialist use administrative data regarding clinical providers that includes specialty of each licensed clinician in the encounter data set. Common identifiers for clinicians or a cross walk between the encounter and the provider data sets.

### Mother's medical record
b. If needed for maternal race, ethnicity, or data regarding place of residence.


## D.    CALCULATION

This measure includes 8 sub-measures. The first sub-measure is a summary measure that describes the extent to which high risk pregnant women have outpatient visits with maternal fetal medicine specialists or subspecialists. The next six sub-measures describe the extent to which specific high risk pregnant subgroups have outpatient visits with maternal fetal medicine specialists or designated subspecialists during their pregnancy. The last sub-measure describes the extent to which high risk pregnant women lack prenatal care.

For simplification of presentation, we illustrate each giving the steps for calculation for that measure. We understand that reporting entities may choose to integrate steps across the measures without altering the definitions.

Each sub-measure will collect similar data elements and create stratification variables. Each sub-measure will be reported overall and by strata as described.


## MEASURE 1A:
Percent of high risk pregnant women who have 0, 1, or 2 or greater outpatient visits with a maternal fetal medicine specialist or an indicated subspecialist during their pregnancy.

**Step 1**: Identify all qualifying pregnancies using Table 1.

**Step 2**: Identify High Risk Pregnancies using Table 2. The Denominator is the number of high risk pregnancies using the indicated look back period.

   To identify the look back period do the following:

   i. Identify date of delivery using codes from Table 1.

   ii. The 2-year look back period is comprised of the 2 calendar years prior to the reporting year and all dates in the reporting year prior to the date of delivery.

   iii. The 10-month look back period is comprised of the 280 days prior to the date of delivery.

**Step 3**:    Collect the following data elements for all eligible women
  i.     Race
  ii.    Ethnicity
  iii.   Insurance type (Public, Commercial, Uninsured)
  iv.    Benefit type (if insured):  HMO, PPO, Medicaid Primary Care Case
         Management (PCCM) Plan, Fee for Service (FFS), other
  v.     Zip code, state and county or equivalent area of mother's
         residence.  Record FIPS if available


**Step 4**:    Create stratification variables

  i.     Race/Ethnicity: Hispanic, Non-Hispanic Black, Non-Hispanic White; Non-
         Hispanic Asian/Pacific Islander, other Non-Hispanic

  ii.    Public vs Commercial (Private Insurance)

  iii.   HMO vs PPO vs FFS vs PCCM vs other

  iv.    Urban Influence Code.  Identify the Urban Influence Code or UIC.  (2013
         urban influence codes available at: http://www.ers.usda.gov/data-
         products/urban-influence-codes.aspx#.UZUvG2cVoj8 ).  Use mother's place
         of residence to determine UIC.  State and county names can be linked or
         looked up directly or zip codes can be linked to county indirectly, using the
         Missouri Census Data Center (http://mcdc.missouri.edu/).  These data will
         link to county or county equivalents as used in various states.

  v.     Identify the Level of Poverty in the mother's county of residence.  The percent
         of all residents in poverty by county or county equivalent are available from
         the US Department of Agriculture at http://www.ers.usda.gov/data-
         products/county-level-data-sets/download-data.aspx.  Our stratification
         standards are based on 2011 US population data that we have analyzed with
         SAS 9.3.  Using mother's state and county of residence (or equivalent) or
         FIPS code, use the variable PCTPOVALL_2011 to categorize into one of 5
         Strata:
         a.  Lowest Quartile of Poverty if percent in poverty is <=12.5%
         b.  Second Quartile of Poverty if percent in poverty is >12.5% and
             <=16.5%
         c.  Third Quartile of poverty if percent in poverty is >16.5% and <=20.7%
         d.  First Upper Quartile (75th-90th) if percent in poverty is >20.7% and
             <=25.7%
         e.  Second Upper Quartile (>90th percentile)
         If needed, the Missouri Census Data Center linked in Step 7. iv. may be used
         to link zip codes to county equivalents.


**Step 5**: Calculate numerator look back period. The numerator look back period includes the
280 days before delivery or last pregnancy visit.

**Step 6**: Compute numerator for measure 1A.

  a.  Identify the specialty of all providers

  b.  Count the number of visits for each of the high risk pregnancies to a maternal
      fetal medicine specialist.

    c. Count the number of visits for each of the high risk pregnancies to a cardiologist.

    d. Count the number of visits for each of the high risk pregnancies to an infectious disease specialist.

    e. Count the number of visits for each of the high risk pregnancies to a neurologist.

    f. Count the number of visits for each of the high risk pregnancies to a psychiatrist or psychologist or licensed therapist.

    g. Calculate the sum of b+c+d+e+f

    h. Categorize the sum from g as i) 0, ii) 1, iii) ≥2

    i. Numerator1 = the number of high risk pregnancies that had 0 visits with a maternal fetal medicine specialist or subspecialist.

    j. Numerator2 = the number of high risk pregnancies that had 1 visit with a maternal fetal medicine specialist or subspecialist.

    k. Numerator3 = the number of high risk pregnancies that had ≥2 visits with a maternal fetal medicine specialist or subspecialist.

**Step 7**: Calculate the percentage of high risk pregnancies for the following:

- Percentage1 is calculated as the 100*Numerator1/Denominator1,

- Percentage2 is calculated as the 100*Numerator2/Denominator1,

- Percentage3 is calculated as the 100*Numerator3/Denominator1,

- Report all percentages to 2 decimal places.


**Step 8**: Report the results of Step 7.

**Step 9**: Repeat steps 2, 6, 7, & 8 for each stratification category listed below, using the following data elements. Report all strata with N of at least 250.

    a. Race and ethnicity
    b. Insurance type (Public/Medicaid, Private/Commercial, None, other)
    c. Benefit type: HMO vs PPO vs FFS vs PCCM vs other
    d. Urban Influence Code or UIC.
    e. Level of Poverty in the county of residence.


**Step 10**: Optionally calculate 95% confidence intervals (using binomial distribution for each category).

    a. Calculate the standard error as the square root of each proportion by 1- the same proportion divided by the number of deliveries.
    b. Multiply the standard error by 1.96.
    c. Subtract that value from the measured proportion. Report the greater of 0 and that number as the lower bound of the 95% confidence interval.
    d. Add the product from b to the measured proportion. Use the lesser of that sum or 1 as the upper bound of the 95% confidence interval.

## MEASURE 1B:

The percentage of pregnant women with HIV disease who have 0, 1, or 2 or greater visits with a maternal fetal medicine specialist or an infectious disease specialist during their pregnancy.

**Step 1**: Identify all qualifying pregnancies using Table 1.

**Step 2**: Identify the pregnancies with HIV disease (CCS code =5) using Table 2. The Denominator is the number of pregnancies with HIV disease using the look back period.

   To identify the look back period do the following:

   i.    Identify date of delivery using codes from Table 1.

   ii.   The 2-year look back period is comprised of the 2 calendar years prior to the reporting year and all dates in the reporting year prior to the date of delivery.

   iii.  The 10-month look back period is comprised of the 280 days prior to the date of delivery.

**Step 3**: Collect the following data elements for all eligible women
   i.    Race
   ii.   Ethnicity
   iii.  Insurance type (Public, Commercial, Uninsured)
   iv.   Benefit type (if insured):  HMO, PPO, Medicaid Primary Care Case Management (PCCM) Plan, Fee for Service (FFS), other
   v.    Zip code, state and county or equivalent area of mother's residence.  Record FIPS if available

**Step 4**: Create stratification variables

   i.    Race/Ethnicity: Hispanic, Non-Hispanic Black, Non-Hispanic White; Non-Hispanic Asian/Pacific Islander, other Non-Hispanic

   ii.   Public vs Commercial (Private Insurance)

   iii.  HMO vs PPO vs FFS vs PCCM vs other

   iv.   Urban Influence Code. Identify the Urban Influence Code or UIC.  (2013 urban influence codes available at: http://www.ers.usda.gov/data-products/urban-influence-codes.aspx#.UZUvG2cVoj8 ).  Use mother's place of residence to determine UIC.  State and county names can be linked or looked up directly or zip codes can be linked to county indirectly, using the Missouri Census Data Center (http://mcdc.missouri.edu/).  These data will link to county or county equivalents as used in various states.

   v.    Identify the Level of Poverty in the mother's county of residence.  The percent of all residents in poverty by county or county equivalent are available from the US Department of Agriculture at http://www.ers.usda.gov/data-products/county-level-data-sets/download-data.aspx.  Our stratification

standards are based on 2011 US population data that we have analyzed with SAS 9.3. Using mother's state and county of residence (or equivalent) or FIPS code, use the variable PCTPOVALL_2011 to categorize into one of 5 Strata:

- a. Lowest Quartile of Poverty if percent in poverty is <=12.5%
- b. Second Quartile of Poverty if percent in poverty is >12.5% and <=16.5%
- c. Third Quartile of poverty if percent in poverty is >16.5% and <=20.7%
- d. First Upper Quartile (75th-90th) if percent in poverty is >20.7% and <=25.7%
- e. Second Upper Quartile (>90th percentile)

If needed, the Missouri Census Data Center linked in Step 5. iv. may be used to link zip codes to county equivalents.

**Step 5**: Calculate numerator look back period. The numerator look back period includes the 280 days before delivery or last pregnancy visit.

**Step 6**: Compute numerator for measure 1B.

- a. Identify the specialty of all providers
- b. Count the number of visits for each of the high risk pregnancies with HIV disease to a maternal fetal medicine specialist.
- c. Count the number of visits for each of the high risk pregnancies with HIV disease to an infectious disease specialist.
- d. Calculate the sum of b+c
- e. Categorize the sum from d as i) 0, ii) 1, iii) ≥2
- f. Numerator1 = the number of high risk pregnancies with HIV disease that had 0 visits with a maternal fetal medicine specialist or infectious disease specialist.
- g. Numerator2 = the number of high risk pregnancies with HIV disease that had 1 visit with a maternal fetal medicine specialist or infectious disease specialist.
- h. Numerator3 = the number of high risk pregnancies with HIV disease that had ≥2 visits with a maternal fetal medicine specialist or infectious disease specialist.

**Step 7**: Calculate the percentage of high risk pregnancies for the following:

- Percentage1 is calculated as the 100*Numerator1/Denominator1,
- Percentage2 is calculated as the 100*Numerator2/Denominator1,
- Percentage3 is calculated as the 100*Numerator3/Denominator1,
- Report all percentages to 2 decimal places.

**Step 8**: Report the results of Step 7.

**Step 9**: Repeat steps 2, 6, 7, & 8 for each stratification category listed below, using the following data elements.  Report all strata with N of at least 250.

    a. Race and ethnicity
    b. Insurance type (Public/Medicaid, Private/Commercial, None, other)
    c. Benefit type: HMO vs PPO vs FFS vs PCCM vs other
    d. Urban Influence Code or UIC.
    e. Level of Poverty in the county of residence.


**Step 10**: Optionally calculate 95% confidence intervals (using binomial distribution for each category).

    a. Calculate the standard error as the square root of each proportion by 1-the same proportion divided by the number of deliveries.
    b. Multiply the standard error by 1.96.
    c. Subtract that value from the measured proportion.  Report the greater of 0 and that number as the lower bound of the 95% confidence interval.
    d. Add the product from b to the measured proportion.  Use the lesser of that sum or 1 as the upper bound of the 95% confidence interval.


## MEASURE 1C:

The percentage of pregnant women with specified cardiac disease who have 0, 1, or 2 or greater visits with a maternal fetal medicine specialist or a cardiologist during their pregnancy.

**Step 1**:  Identify all qualifying pregnancies using Table 1.

**Step 2**:  Identify the pregnancies with specified cardiac disease (see Table 3 below). The Denominator is the number of pregnancies with specific cardiac disease using the look back period.

   To identify the look back period do the following:

   i.      Identify date of delivery using codes from Table 1.

   ii.     The 2-year look back period is comprised of the 2 calendar years prior to the reporting year and all dates in the reporting year prior to the date of delivery.

   iii.    The 10-month look back period is comprised of the 280 days prior to the date of delivery.

**Table 3: Specified cardiac disease includes the following CCS codes from Table 1 and a few ICD9 codes from Table 2**

| CCS | | |
|-----|-----|-----|
| 99 | 2y | HTN with CX and Secondary HTN |
| 100 | 2y | Acute MI |
| 101 | 2y | Coronary atherosclerosis and other heart disease |
| 104 | 2y | Other and ill defined heart disease |
| 103 | 2y | Pulmonary heart disease |
| 96 | 2y | Heart valve disorders |
| 97 | 2y | Peri, endo and myocarditis or cardiomyopathy |
| 105 | 2y | Conduction disorders |
| 106 | 2y | Cardiac Dysrhythmias |
| 107 | 2y | Cardiac arrest and vfib |
| 108 | 2y | CHF, non hypertensive |

**Exclude these heart valve disorders:**
4240 Mitral valve disorders
7852 Undiagnosed cardiac murmurs
7853 Other abnormal heart sounds

**Add the following ICD9 Codes:**
674.5x Cardiomyopathy
648.5x Congenital cardiac disorder, mother

**Step 3**:  Collect the following data elements for all eligible women
  i.  Race
  ii.  Ethnicity
  iii.  Insurance type (Public, Commercial, Uninsured)
  iv.  Benefit type (if insured):  HMO, PPO, Medicaid Primary Care Case Management (PCCM) Plan, Fee for Service (FFS), other
  v.  Zip code, state and county or equivalent area of mother's residence.  Record FIPS if available

**Step 4**:  Create stratification variables

  i.  Race/Ethnicity: Hispanic, Non-Hispanic Black, Non-Hispanic White; Non-Hispanic Asian/Pacific Islander, other Non-Hispanic

  ii.  Public vs Commercial (Private Insurance)

  iii.  HMO vs PPO vs FFS vs PCCM vs other

  iv.  Urban Influence Code.(1)  Identify the Urban Influence Code or UIC.  (2013 urban influence codes available at: http://www.ers.usda.gov/data-products/urban-influence-codes.aspx#.UZUvG2cVoj8 ).  Use mother's place of residence to determine UIC.  State and county names can be linked or looked up directly or zip codes can be linked to County indirectly, using the Missouri Census Data Center (http://mcdc.missouri.edu/).  These data will link to county or county equivalents as used in various states.

  v.  Identify the Level of Poverty in the mother's county of residence.  The percent of all residents in poverty by county or county equivalent are available from the US Department of Agriculture at http://www.ers.usda.gov/data-products/county-level-data-sets/download-data.aspx.  Our stratification standards are based on 2011 US population data that we have analyzed with SAS 9.3.  Using Mother's state and county of residence (or equivalent) or FIPS code, use the variable PCTPOVALL_2011 to categorize into one of 5 Strata:

a. Lowest Quartile of Poverty if percent in poverty is <=12.5%
b. Second Quartile of Poverty if percent in poverty is >12.5% and <=16.5%
c. Third Quartile of poverty if percent in poverty is >16.5% and <=20.7%
d. First Upper Quartile (75th-90th) if percent in poverty is >20.7% and <=25.7%
e. Second Upper Quartile (>90th percentile)

If needed, the Missouri Census Data Center linked in Step 7. iv. may be used to link zip codes to county equivalents.

**Step 5**: Calculate numerator look back period. The numerator look back period includes the 280 days before delivery or last pregnancy visit.

**Step 6**: Compute numerator for measure 1C.

a. Identify the specialty of all providers

b. Count the number of visits for each of the high risk pregnancies with specified cardiac disease to a maternal fetal medicine specialist.

c. Count the number of visits for each of the high risk pregnancies with specified cardiac disease to a cardiologist.

d. Calculate the sum of b+c

e. Categorize the sum from d as i) 0, ii) 1, iii) ≥2

f. Numerator1 = the number of high risk pregnancies with specified cardiac disease that had 0 visits with a maternal fetal medicine specialist or cardiologist.

g. Numerator2 = the number of high risk pregnancies with specified cardiac disease that had 1 visit with a maternal fetal medicine specialist or cardiologist.

h. Numerator3 = the number of high risk pregnancies with specified cardiac disease that had ≥2 visits with a maternal fetal medicine specialist or cardiologist.

**Step 7**: Calculate the percentage of high risk pregnancies for the following:

- Percentage1 is calculated as the 100*Numerator1/Denominator1,

- Percentage2 is calculated as the 100*Numerator2/Denominator1,

- Percentage3 is calculated as the 100*Numerator3/Denominator1,

- Report all percentages to 2 decimal places.

**Step 8**: Report the results of Step 7.

**Step 9**: Repeat steps 2, 6, 7, & 8 for each stratification category listed below, using the following data elements. Report all strata with N of at least 250.

a. Race and ethnicity
b. Insurance type (Public/Medicaid, Private/Commercial, None, other)
c. Benefit type: HMO vs PPO vs FFS vs PCCM vs other
d. Urban Influence Code or UIC.
e. Level of Poverty in the county of residence.

**Step 10**: Optionally calculate 95% confidence intervals (using binomial distribution for each category).

     a. Calculate the standard error as the square root of each proportion by 1-the same proportion divided by the number of deliveries.
     b. Multiply the standard error by 1.96.
     c. Subtract that value from the measured proportion.  Report the greater of 0 and that number as the lower bound of the 95% confidence interval.
     d. Add the product from b to the measured proportion.  Use the lesser of that sum or 1 as the upper bound of the 95% confidence interval.

## MEASURE 1D:

The percentage of pregnant women with a mood disorder or mental health disorder complicating pregnancy who have 0, 1, or 2 or greater visits with a maternal fetal medicine specialist or psychiatrist, psychologist, or licensed therapist.

**Step 1**: Identify all qualifying pregnancies using Table 1.

**Step 2**: Identify the pregnancies with a mood disorder or mental health disorder complicating pregnancy (CCS code =657, ICD9=648.4x) using Table 2. The Denominator is the number of pregnancies with a mood disorder or mental health disorder using the look back period.

     To identify the look back period do the following:

     i. Identify date of delivery using codes from Table 1.

     ii. The 2-year look back period is comprised of the 2 calendar years prior to the reporting year and all dates in the reporting year prior to the date of delivery.

     iii. The 10-month look back period is comprised of the 280 days prior to the date of delivery.

**Step 3**: Collect the following data elements for all eligible women
     i. Race
     ii. Ethnicity
     iii. Insurance type (Public, Commercial, Uninsured)
     iv. Benefit type (if insured):  HMO, PPO, Medicaid Primary Care Case Management (PCCM) Plan, Fee for Service (FFS), other
     v. Zip code, state and county or equivalent area of mother's residence.  Record FIPS if available

**Step 4**: Create stratification variables

     i. Race/Ethnicity: Hispanic, Non-Hispanic Black, Non-Hispanic White; Non-Hispanic Asian/Pacific Islander, other Non-Hispanic

     ii. Public vs Commercial (Private Insurance)

     iii. HMO vs PPO vs FFS vs PCCM vs other

     iv. Urban Influence Code. Identify the Urban Influence Code or UIC.  (2013 urban influence codes available at: http://www.ers.usda.gov/data-

products/urban-influence-codes.aspx#.UZUvG2cVoj8 ).  Use mother's place of residence to determine UIC.  State and county names can be linked or looked up directly or zip codes can be linked to County indirectly, using the Missouri Census Data Center (http://mcdc.missouri.edu/).  These data will link to county or county equivalents as used in various states.

    v.    Identify the Level of Poverty in the mother's county of residence.  The percent of all residents in poverty by county or county equivalent are available from the US Department of Agriculture at http://www.ers.usda.gov/data-products/county-level-data-sets/download-data.aspx. Our stratification standards are based on 2011 US population data that we have analyzed with SAS 9.3.  Using Mother's state and county of residence (or equivalent) or FIPS code, use the variable PCTPOVALL_2011 to categorize into one of 5 Strata:

        a.  Lowest Quartile of Poverty if percent in poverty is <=12.5%
        b.  Second Quartile of Poverty if percent in poverty is >12.5% and <=16.5%
        c.  Third Quartile of poverty if percent in poverty is >16.5% and <=20.7%
        d.  First Upper Quartile (75th-90th) if percent in poverty is >20.7% and <=25.7%
        e.  Second Upper Quartile (>90th percentile)

If needed, the Missouri Census Data Center linked in Step 7. iv. may be used to link zip codes to county equivalents.

**Step 5**:  Calculate numerator look back period. The numerator look back period includes the 280 days before delivery or last pregnancy visit.

**Step 6**: Compute numerator for measure 1D.

    a.  Identify the specialty of all providers

    b.  Count the number of visits for each of the high risk pregnancies with a mood disorder or mental health disorder to a maternal fetal medicine specialist.

    c.  Count the number of visits for each of the high risk pregnancies with a mood disorder or mental health disorder to a psychiatrist, psychologist, or licensed therapist.

    d.  Calculate the sum of b+c

    e.  Categorize the sum from d as i) 0, ii) 1, iii) ≥2

    f.  Numerator1 = the number of high risk pregnancies with a mood disorder or mental health disorder that had 0 visits with a maternal fetal medicine specialist or psychiatrist, psychologist, or licensed therapist.

    g.  Numerator2 = the number of high risk pregnancies with a mood disorder or mental health disorder that had 1 visit with a maternal fetal medicine specialist or a psychiatrist, psychologist, or licensed therapist.

    h.  Numerator3 = the number of high risk pregnancies with a mood disorder or mental health disorder that had ≥2 visits with a maternal fetal medicine specialist or a psychiatrist, psychologist, or licensed therapist.

**Step 7**: Calculate the percentage of high risk pregnancies for the following:

- Percentage1 is calculated as the 100*Numerator1/Denominator1,

- Percentage2 is calculated as the 100*Numerator2/Denominator1,

- Percentage3 is calculated as the 100*Numerator3/Denominator1,

- Report all percentages to 2 decimal places.

**Step 8**: Report the results of Step 7.

**Step 9**: Repeat steps 2, 6, 7, & 8 for each stratification category listed below, using the following data elements.  Report all strata with N of at least 250.

  a. Race and ethnicity
  b. Insurance type (Public/Medicaid, Private/Commercial, None, other)
  c. Benefit type: HMO vs PPO vs FFS vs PCCM vs other
  d. Urban Influence Code or UIC.
  e. Level of Poverty in the county of residence.

**Step 10**: Optionally calculate 95% confidence intervals (using binomial distribution for each category).

  a. Calculate the standard error as the square root of each proportion by 1-the same proportion divided by the number of deliveries.
  b. Multiply the standard error by 1.96.
  c. Subtract that value from the measured proportion.  Report the greater of 0 and that number as the lower bound of the 95% confidence interval.
  d. Add the product from b to the measured proportion.  Use the lesser of that sum or 1 as the upper bound of the 95% confidence interval.

## MEASURE 1E:

The percentage of pregnant women with substance dependency who have 0, 1, or 2 or greater visits with a maternal fetal medicine specialist or psychiatrist, psychologist, or licensed therapist during their pregnancy.

**Step 1**:    Identify all qualifying pregnancies using Table 1.

**Step 2**:    Identify the pregnancies with substance dependency (CCS code =660,661, ICD9=648.3x) using Table 2. The Denominator is the number of pregnancies with substance dependency using the look back period.

   To identify the look back period do the following:

   i.      Identify date of delivery using codes from Table 1.

   ii.     The 2-year look back period is comprised of the 2 calendar years prior to the reporting year and all dates in the reporting year prior to the date of delivery.

   iii.    The 10-month look back period is comprised of the 280 days prior to the date of delivery.

**Step 3**:   Collect the following data elements for all eligible women
- i.    Race
- ii.   Ethnicity
- iii.   Insurance type (Public, Commercial, Uninsured)
- iv.   Benefit type (if insured):  HMO, PPO, Medicaid Primary Care Case Management (PCCM) Plan, Fee for Service (FFS), other
- v.   zip Code, state and county or equivalent area of mother's residence.  Record FIPS if available

**Step 4**:   Create stratification variables

- i.   Race/Ethnicity: Hispanic, Non-Hispanic Black, Non-Hispanic White; Non-Hispanic Asian/Pacific Islander, other Non-Hispanic

- ii.   Public vs Commercial (Private Insurance)

- iii.   HMO vs PPO vs FFS vs PCCM vs other

- iv.   Urban Influence Code.  Identify the Urban Influence Code or UIC.  (2013 urban influence codes available at: http://www.ers.usda.gov/data-products/urban-influence-codes.aspx#.UZUvG2cVoj8 ).  Use mother's place of residence to determine UIC.  State and County names can be linked or looked up directly or zip codes can be linked to County indirectly, using the Missouri Census Data Center (http://mcdc.missouri.edu/).  These data will link to County or County equivalents as used in various states.

- v.   Identify the Level of Poverty in the mother's county of residence.  The percent of all residents in poverty by county or county equivalent are available from the US Department of Agriculture at http://www.ers.usda.gov/data-products/county-level-data-sets/download-data.aspx. Our stratification standards are based on 2011 US population data that we have analyzed with SAS 9.3.  Using Mother's state and county of residence (or equivalent) or FIPS code, use the variable PCTPOVALL_2011 to categorize into one of 5 Strata:
  - a.  Lowest Quartile of Poverty if percent in poverty is <=12.5%
  - b.  Second Quartile of Poverty if percent in poverty is >12.5% and <=16.5%
  - c.  Third Quartile of poverty if percent in poverty is >16.5% and <=20.7%
  - d.  First Upper Quartile (75th-90th) if percent in poverty is >20.7% and <=25.7%
  - e.  Second Upper Quartile (>90th percentile)

  If needed, the Missouri Census Data center linked in Step 7. iv. may be used to link zip codes to county equivalents.

**Step 5**:  Calculate numerator look back period. The numerator look back period includes the 280 days before delivery or last pregnancy visit.

**Step 6**: Compute numerator for measure 1E.

- a.  Identify the specialty of all providers

- b.  Count the number of visits for each of the high risk pregnancies with substance dependency to a maternal fetal medicine specialist.

c. Count the number of visits for each of the high risk pregnancies with substance dependency to a psychiatrist, psychologist, or licensed therapist.

d. Calculate the sum of b+c

e. Categorize the sum from d as i) 0, ii) 1, iii) ≥2

f. Numerator1 = the number of high risk pregnancies with substance dependency that had 0 visits with a maternal fetal medicine specialist or psychiatrist, psychologist, or licensed therapist.

g. Numerator2 = the number of high risk pregnancies with substance dependency that had 1 visits with a maternal fetal medicine specialist or a psychiatrist, psychologist, or licensed therapist.

h. Numerator3 = the number of high risk pregnancies with substance dependency that had ≥2 visits with a maternal fetal medicine specialist or a psychiatrist, psychologist, or licensed therapist.

**Step 7**: Calculate the percentage of high risk pregnancies for the following:

- Percentage1 is calculated as the 100*Numerator1/Denominator1,

- Percentage2 is calculated as the 100*Numerator2/Denominator1,

- Percentage3 is calculated as the 100*Numerator3/Denominator1,

- Report all percentages to 2 decimal places.


**Step 8**: Report the results of Step 7.

**Step 9**: Repeat steps 2, 6, 7, & 8 for each stratification category listed below, using the following data elements.  Report all strata with N of at least 250.

a. Race and ethnicity
b. Insurance type (Public/Medicaid, Private/Commercial, None, other)
c. Benefit type: HMO vs PPO vs FFS vs PCCM vs other
d. Urban Influence Code or UIC.
e. Level of Poverty in the county of residence.


**Step 10**: Optionally calculate 95% confidence intervals (using binomial distribution for each category).

a. Calculate the standard error as the square root of each proportion by 1-the same proportion divided by the number of deliveries.
b. Multiply the standard error by 1.96.
c. Subtract that value from the measured proportion.  Report the greater of 0 and that number as the lower bound of the 95% confidence interval.
d. Add the product from b to the measured proportion.  Use the lesser of that sum or 1 as the upper bound of the 95% confidence interval.

**MEASURE 1F:**

The percentage of pregnant women with specified poor obstetrical history who have 0, 1, or 2 or greater visits with a maternal fetal medicine specialist during their pregnancy.

**Step 1**: Identify all qualifying pregnancies using Table 1.

**Step 2**: Identify the pregnancies with specified poor obstetrical history (ICD-9 = 641.0, 762.0 V23.49, V23.41) using Table 2. The Denominator is the number of pregnancies with poor obstetrical history using the look back period.

To identify the look back period do the following:

i. Identify date of delivery using codes from Table 1.

ii. The 2-year look back period is comprised of the 2 calendar years prior to the reporting year and all dates in the reporting year prior to the date of delivery.

iii. The 10-month look back period is comprised of the 280 days prior to the date of delivery.

**Step 3**: Collect the following data elements for all eligible women
i. Race
ii. Ethnicity
iii. Insurance type (Public, Commercial, Uninsured)
iv. Benefit type (if insured): HMO, PPO, Medicaid Primary Care Case Management (PCCM) Plan, Fee for Service (FFS), other
v. Zip code, state and county or equivalent area of mother's residence. Record FIPS if available

**Step 4**: Create stratification variables

i. Race/Ethnicity: Hispanic, Non-Hispanic Black, Non-Hispanic White; Non-Hispanic Asian/Pacific Islander, other Non-Hispanic

ii. Public vs Commercial (Private Insurance)

iii. HMO vs PPO vs FFS vs PCCM vs other

iv. Urban Influence Code. Identify the Urban Influence Code or UIC. (2013 urban influence codes available at: http://www.ers.usda.gov/data-products/urban-influence-codes.aspx#.UZUvG2cVoj8 ). Use mother's place of residence to determine UIC. State and County names can be linked or looked up directly or zip codes can be linked to County indirectly, using the Missouri Census Data Center (http://mcdc.missouri.edu/). These data will link to County or County equivalents as used in various states.

v. Identify the Level of Poverty in the mother's county of residence. The percent of all residents in poverty by county or county equivalent are available from the US Department of Agriculture at http://www.ers.usda.gov/data-products/county-level-data-sets/download-data.aspx. Our stratification standards are based on 2011 US population data that we have analyzed with SAS 9.3. Using Mother's state and county of residence (or equivalent) or

FIPS code, use the variable PCTPOVALL_2011 to categorize into one of 5 Strata:

    a. Lowest Quartile of Poverty if percent in poverty is <=12.5%
    b. Second Quartile of Poverty if percent in poverty is >12.5% and <=16.5%
    c. Third Quartile of poverty if percent in poverty is >16.5% and <=20.7%
    d. First Upper Quartile (75th-90th) if percent in poverty is >20.7% and <=25.7%
    e. Second Upper Quartile (>90th percentile)

If needed, the Missouri Census Data Center linked in Step 7. iv. may be used to link zip codes to county equivalents.

**Step 5**: Calculate numerator look back period. The numerator look back period includes the 280 days before delivery or last pregnancy visit.

**Step 6**: Compute numerator for measure 1F.

    a. Identify the specialty of all providers

    b. Count the number of visits for each of the high risk pregnancies with specified poor obstetrical history to a maternal fetal medicine specialist.

    c. Calculate the sum of b

    d. Categorize the sum from c as i) 0, ii) 1, iii) ≥2

    e. Numerator1 = the number of high risk pregnancies with specified poor obstetrical history that had 0 visits with a maternal fetal medicine specialist

    f. Numerator2 = the number of high risk pregnancies with specified poor obstetrical history that had 1 visits with a maternal fetal medicine specialist

    g. Numerator3 = the number of high risk pregnancies with specified poor obstetrical history that had ≥2 visits with a maternal fetal medicine specialist

**Step 7**: Calculate the percentage of high risk pregnancies for the following:

- Percentage1 is calculated as the 100*Numerator1/Denominator1,

- Percentage2 is calculated as the 100*Numerator2/Denominator1,

- Percentage3 is calculated as the 100*Numerator3/Denominator1,

- Report all percentages to 2 decimal places.

**Step 8**: Report the results of Step 7.

**Step 9**: Repeat steps 2, 6, 7, & 8 for each stratification category listed below, using the following data elements. Report all strata with N of at least 250.

    a. Race and ethnicity
    b. Insurance type (Public/Medicaid, Private/Commercial, None, other)
    c. Benefit type: HMO vs PPO vs FFS vs PCCM vs other
    d. Urban Influence Code or UIC.
    e. Level of Poverty in the county of residence.

**Step 10**: Optionally calculate 95% confidence intervals (using binomial distribution for each category).

    a. Calculate the standard error as the square root of each proportion by 1-the same proportion divided by the number of deliveries.
    b. Multiply the standard error by 1.96.
    c. Subtract that value from the measured proportion.  Report the greater of 0 and that number as the lower bound of the 95% confidence interval.
    d. Add the product from b to the measured proportion.  Use the lesser of that sum or 1 as the upper bound of the 95% confidence interval.

**MEASURE 1G:** The percentage of pregnant women with epilepsy who have 0, 1 or 2, or 3 or greater visits with a maternal fetal medicine specialist or neurologist during their pregnancy

**Step 1**:    Identify all qualifying pregnancies using Table 1.

**Step 2**:    Identify the pregnancies with epilepsy (ICD9=649.4x and 345.xx) using Table 2. The Denominator is the number of pregnancies with epilepsy using the look back period.

    To identify the look back period do the following:

    i.    Identify date of delivery using codes from Table 1.

    ii.    The 2-year look back period is comprised of the 2 calendar years prior to the reporting year and all dates in the reporting year prior to the date of delivery.

    iii.    The 10-month look back period is comprised of the 280 days prior to the date of delivery.

**Step 3**:    Collect the following data elements for all eligible women
    i.    Race
    ii.    Ethnicity
    iii.    Insurance type (Public, Commercial, Uninsured)
    iv.    Benefit type (if insured):  HMO, PPO, Medicaid Primary Care Case Management (PCCM) Plan, Fee for Service (FFS), other
    v.    Zip code, state and county or equivalent area of mother's residence.  Record FIPS if available.

**Step 4**:    Create stratification variables

    i.    Race/Ethnicity: Hispanic, Non-Hispanic Black, Non-Hispanic White; Non-Hispanic Asian/Pacific Islander, other Non-Hispanic

    ii.    Public vs Commercial (Private Insurance)

    iii.    HMO vs PPO vs FFS vs PCCM vs other

    iv.    Urban Influence Code. Identify the Urban Influence Code or UIC.  (2013 urban influence codes available at: http://www.ers.usda.gov/data-

products/urban-influence-codes.aspx#.UZUvG2cVoj8 ).  Use mother's place of residence to determine UIC.  State and county names can be linked or looked up directly or zip codes can be linked to county indirectly, using the Missouri Census Data Center (http://mcdc.missouri.edu/).  These data will link to county or county equivalents as used in various states.

v.   Identify the Level of Poverty in the mother's county of residence.  The percent of all residents in poverty by county or county equivalent are available from the US Department of Agriculture at http://www.ers.usda.gov/data-products/county-level-data-sets/download-data.aspx. Our stratification standards are based on 2011 US population data that we have analyzed with SAS 9.3.  Using mother's state and county of residence (or equivalent) or FIPS code, use the variable PCTPOVALL_2011 to categorize into one of 5 Strata:

   a.  Lowest Quartile of Poverty if percent in poverty is <=12.5%
   b.  Second Quartile of Poverty if percent in poverty is >12.5% and <=16.5%
   c.  Third Quartile of poverty if percent in poverty is >16.5% and <=20.7%
   d.  First Upper Quartile (75th-90th) if percent in poverty is >20.7% and <=25.7%
   e.  Second Upper Quartile (>90th percentile)

If needed, the Missouri Census Data Center linked in Step 7. iv. may be used to link zip codes to county equivalents.

**Step 5**:  Calculate numerator look back period. The numerator look back period includes the 280 days before delivery or last pregnancy visit.

**Step 6**: Compute numerator for measure 1G.

   a.  Identify the specialty of all providers

   b.  Count the number of visits for each of the high risk pregnances with epilepsy to a maternal fetal medicine specialist.

   c.  Count the number of visits for each of the high risk pregnances with epilepsy to a neurologist.

   d.  Calculate the sum of b+c

   e.  Categorize the sum from d as i) 0, ii) 1 or 2, iii) ≥3

   f.  Numerator1 = the number of high risk pregnancies with epilepsy that had 0 visits with a maternal fetal medicine specialist or a neurologist.

   g.  Numerator2 = the number of high risk pregnancies epilepsy that had 1 visit with a maternal fetal medicine specialist or a neurologist.

   h.  Numerator3 = the number of high risk pregnancies with epilepsy that had ≥2 visits with a maternal fetal medicine specialist or a neurologist.

**Step 7**: Calculate the percentage of high risk pregnancies for the following:

• Percentage1 is calculated as the 100*Numerator1/Denominator1,

• Percentage2 is calculated as the 100*Numerator2/Denominator1,

- Percentage3 is calculated as the 100*Numerator3/Denominator1,
- Report all percentages to 2 decimal places.

**Step 8**: Report the results of Step 7.

**Step 9**: Repeat steps 2, 6, 7, & 8 for each stratification category listed below, using the following data elements.  Report all strata with N of at least 250.

     a.  Race and ethnicity
     b.  Insurance type (Public/Medicaid, Private/Commercial, None, other)
     c.  Benefit type: HMO vs PPO vs FFS vs PCCM vs other
     d.  Urban Influence Code or UIC.
     e.  Level of Poverty in the county of residence.

**Step 10**: Optionally calculate 95% confidence intervals (using binomial distribution for each category).

     a.  Calculate the standard error as the square root of each proportion by 1-the same proportion divided by the number of deliveries.
     b.  Multiply the standard error by 1.96.
     c.  Subtract that value from the measured proportion.  Report the greater of 0 and that number as the lower bound of the 95% confidence interval.
     d.  Add the product from b to the measured proportion.  Use the lesser of that sum or 1 as the upper bound of the 95% confidence interval.

## MEASURE 1H:

The percentage of high risk pregnant women who have no outpatient visits with any provider during their pregnancy.

**Step 1**:    Identify all qualifying pregnancies using Table 1.

**Step 2**:    Identify High Risk Pregnancies in Table 2. The Denominator is the number of pregnancies that are high risk using the look back period.

    To identify the look back period do the following:

     i.      Identify date of delivery using codes from Table 1.

     ii.     The 2-year look back period is comprised of the 2 calendar years prior to the reporting year and all dates in the reporting year prior to the date of delivery.

     iii.    The 10-month look back period is comprised of the 280 days prior to the date of delivery.

**Step 3**:    Collect the following data elements for all eligible women
     i.      Race
     ii.     Ethnicity
     iii.    Insurance type (Public, Commercial, Uninsured)

iv. Benefit type (if insured):  HMO, PPO, Medicaid Primary Care Case Management (PCCM) Plan, Fee for Service (FFS), other

v. Zip code, state and county or equivalent area of mother's residence.  Record FIPS if available

**Step 4**: Create stratification variables

i. Race/Ethnicity: Hispanic, Non-Hispanic Black, Non-Hispanic White; Non-Hispanic Asian/Pacific Islander, other Non-Hispanic

ii. Public vs Commercial (Private Insurance)

iii. HMO vs PPO vs FFS vs PCCM vs other

iv. Urban Influence Code.  Identify the Urban Influence Code or UIC.  (2013 urban influence codes available at: http://www.ers.usda.gov/data-products/urban-influence-codes.aspx#.UZUvG2cVoj8 ).  Use mother's place of residence to determine UIC.  State and county names can be linked or looked up directly or zip codes can be linked to county indirectly, using the Missouri Census Data Center (http://mcdc.missouri.edu/).  These data will link to county or county equivalents as used in various states.

v. Identify the Level of Poverty in the mother's county of residence.  The percent of all residents in poverty by county or county equivalent are available from the US Department of Agriculture at http://www.ers.usda.gov/data-products/county-level-data-sets/download-data.aspx. Our stratification standards are based on 2011 US population data that we have analyzed with SAS 9.3.  Using Mother's state and county of residence (or equivalent) or FIPS code, use the variable PCTPOVALL_2011 to categorize into one of 5 Strata:

    a. Lowest Quartile of Poverty if percent in poverty is <=12.5%

    b. Second Quartile of Poverty if percent in poverty is >12.5% and <=16.5%

    c. Third Quartile of poverty if percent in poverty is >16.5% and <=20.7%

    d. First Upper Quartile (75th-90th) if percent in poverty is >20.7% and <=25.7%

    e. Second Upper Quartile (>90th percentile)

If needed, the Missouri Census Data Center linked in Step 7. iv. may be used to link zip codes to county equivalents.

**Step 5**:  Calculate numerator look back period. The numerator look back period includes the 280 days before delivery or last pregnancy visit.

**Step 6**: Compute numerator for measure 1H.

a. Count the number of outpatient claims for each of the high risk pregnancies during the look back period.

b. Numerator 1= number of high risk pregnancies with 0 outpatient claims prior to the date of delivery

**Step 7**: Calculate the percentage of high risk pregnancies for the following:

- Percentage1 is calculated as the 100*Numerator1/Denominator1,
- Report all percentages to 2 decimal places.

**Step 8**: Report the results of Step 7.

**Step 9**: Repeat steps 2, 6, 7, & 8 for each stratification category listed below, using the following data elements.  Report all strata with N of at least 250.

   a.  Race and ethnicity
   b.  Insurance type (Public/Medicaid, Private/Commercial, None, other)
   c.  Benefit type: HMO vs PPO vs FFS vs PCCM vs other
   d.  Urban Influence Code or UIC.
   e.  Level of Poverty in the county of residence.

**Step 10**: Optionally calculate 95% confidence intervals (using binomial distribution for each category).

   a.  Calculate standard error as the square root of each proportion multiplied by 1-the same proportion divided by the number of deliveries for this measure.
   b.  Multiply the standard error by 1.96.
   c.  Subtract that value from the measured proportion.  Report the greater of 0 and that number as the lower bound of the 95% confidence interval.
   d.  Add the product from b to the measured proportion.  Use the lesser of that sum or 1 as the upper bound of the 95% confidence interval.